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SEWALL's

EXAMINATION

OF

PHRENOLOGY,

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38.
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PLATE.

Fig III.

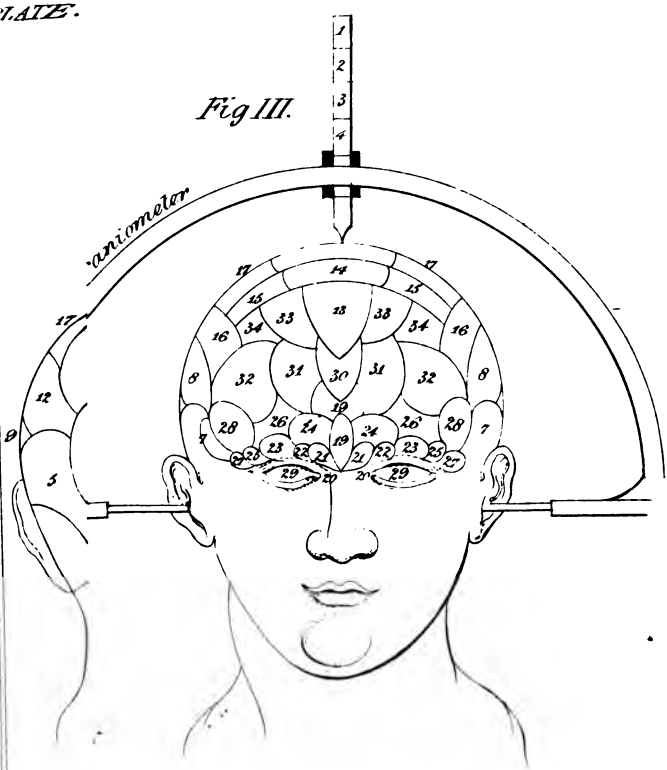


Fig. III. INTELLECT.

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2. Ph
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27. Number.
28. Tune.
29. Language.
30. Comparison.
31. Causality.
32. Wit.
33. Imitation
34. Wonder.

AN

EXAMINATION

OF

PHRENOLOGY;

In Two Lectures,

DELIVERED TO THE STUDENTS OF THE COLUMBIAN COLLEGE, DISTRICT OF COLUMBIA, FEBRUARY, 1837.

BY THOMAS SEWALL, M.D.,
PROFESSOR OF ANATOMY AND PHYSIOLOGY.

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1838.

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EXPLANATION OF THE PLATES.

Plate I.

Exhibits the name, form, size, and position of the phrenological organs, as represented on the figured head of Mr. Combe. It also shews the form and application of the craniometer.

Plate II.

Shews by a horizontal section, the thickness of the skull of an adult male, a robust waterman. It also exhibits a horizontal section of the brain. Fig. 1. the forepart of the skull. Fig. 2, the thickness of the skull. Fig. 3, the fissure in which the falx of the duramater is situated, which divides the right and left hemispheres of the brain. Fig. 4, the falx of the duramater turned back. Fig. 5, the cortical or pulpy part of the brain. Fig. 6, the medullary or fibrous portion of the brain. Fig. 7, the grooves which separate the convolutions of the brain. Fig. 8, the corpus callosum, or great commissure of the brain.

Plate III.

Shews, by a horizontal section, the skull of a delicate female, aged about 25. Fig. 1, the forepart of the skull. Fig. 2, the thickness of the skull.

Plate IV.

Shews, by a vertical section, the skull of an adult male, and was furnished me by N. R. Smith, M.D., Professor of Surgery in the University of Maryland. Fig. 1, the

thickness of the skull. Fig, 2, the frontal sinuses. Fig. 3, the convolutions of the brain. Fig. 4. the grooves which separate the convolutions of the brain. Fig. 5, the cerebellum. Fig. 6, the tentorium, or horizontal membrane, which separates the cerebrum from the cerebellum. Fig. 7, the medulla oblongata. Fig. 8, the spinal marrow.

Plate V.

Shews by a horizontal section, the skull of an adult male, and is also from the cabinet of Professor Smith. Fig. 1, the forepart of the skull. Fig. 2, the thickness of the skull.

Plate VI.

Shews, by a vertical section, the skull of an adult male, from the cabinet of Professor Smith. It also shews the brain invested by the duramater. Fig. 1, the thickness of the skull. Fig. 2, the brain invested by the duramater. Fig. 3, the lateral sinus. Fig. 4, the cerebellum, invested by the duramater. Fig. 5, the middle artery of the duramater.

Plate VII.

Shews, by a vertical section, the thickness of a skull, the cast of which is from the cabinet of Spurzheim, and was procured and sent me by J. C. Warren, M.D., Professor of Anatomy and Surgery in Harvard University. Fig. 1, the thickness of the skull. Fig. 2, grooves in the skull, shewing the position of the middle artery of the duramater.

Plate VIII.

Shews, by a horizontal section, the skull of an adult male, aged 30. Fig. 1, the thickness of the skull. Fig. 2, the frontal sinuses. Fig. 3, the zigomatic process, under which the temporal muscle passes to the lower jaw.

PLATE II.

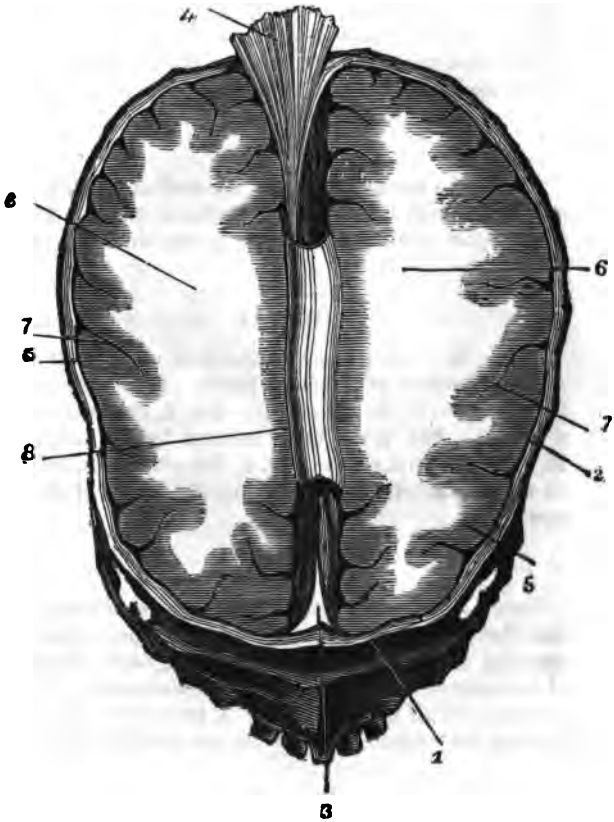


PLATE III.



PLATE IV.

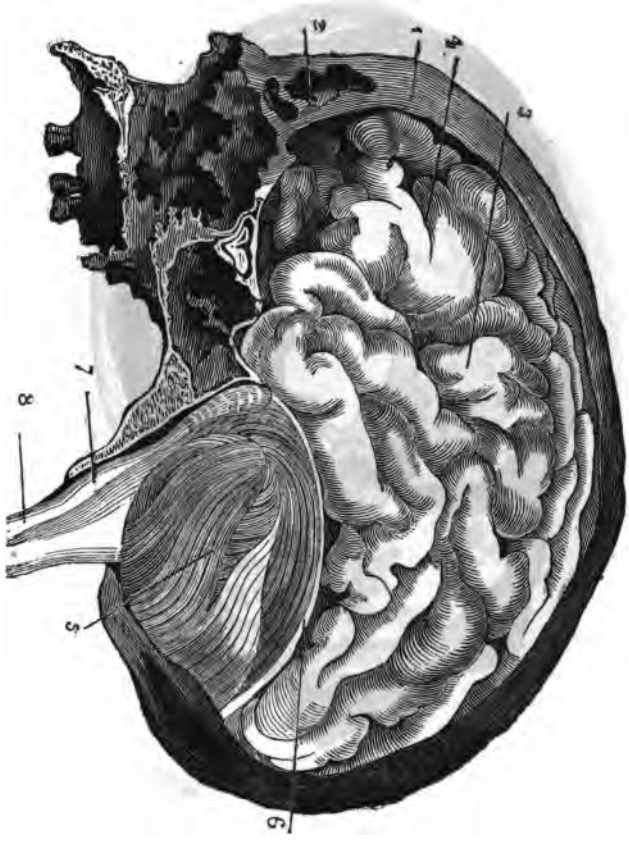




PLATE V.



PLATE VI.

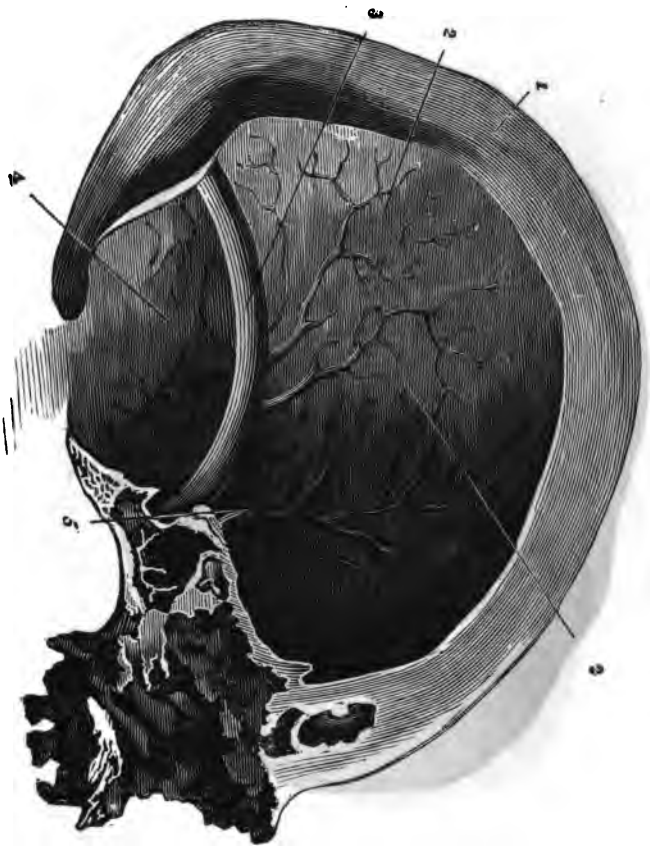




PLATE VIII.



AN

EXAMINATION OF PHRENOLOGY.

LECTURE I.

GENTLEMEN,

The object of the lectures which I am invited to deliver will be an examination of Phrenology; a science which, though of recent date, has spread with great rapidity, and is at this time exciting a general and strong interest in the scientific circles of Europe and this country.

The account which we have received of the origin and progress of this subject is singular and interesting.

About half a century ago, Dr. Gall, an ingenious and eccentric physician of Germany, was led, as he says, by observation, to the fact, that the various mental manifestations of different individuals, were accompanied by a peculiar conformation of the cranium.—His attention was at first drawn to this subject by observing, while quite a youth, that each of his brothers and sisters, his schoolfellows and companions in play, possessed some peculiarity of talent or disposition, some aptitude or propensity, which distinguished them from others. One was modest, another haughty; this one frank, that deceitful; this peaceable, that disputatious and quarrelsome. In their childish sports, he found some amused themselves by cut-

ting figures in wood, or drawing them on paper, in painting, or the cultivation of a garden; while others abandoned themselves to the noisy games, or traversed the woods in pursuit of flowers, birds' nests, and butterflies. One was the carpenter of the house, and was always seen with tools in his hand; and the greatest pleasure of another, on the contrary, was to assist at the mass, and to ring the church bells.

They were equally diversified in their capacities for study. Some were distinguished for the beauty of their penmanship, some for their success in arithmetic, others for the talent of acquiring a knowledge of natural history, or of languages. The composition of one was remarkable for elegance, while the style of another was stiff and dry; a third connected his reasoning in the closest manner, and clothed his arguments in the most forcible language.

In the course of his observations, he found that some of his school fellows were distinguished for accuracy and power of memory, and that those thus gifted had prominent eyes.

He soon came to the conclusion that if memory for words was connected with an external sign, the same might be the case with other intellectual powers; and from this moment, he says, every individual, distinguished for any peculiarity, became the object of his attention and study. Great musicians, great poets, great painters, great mathematicians, were carefully examined by him, and their characters investigated.

And while he noticed this coincidence between the external form of the head and the character of

the mind, he tells us that he referred the whole influence, whatever it was, to the brain, and not to the bony casement which surrounds it.

Thus furnished with so many proofs of the coincidence between the development of different parts of the brain, and the display of the moral and intellectual character of man, he was compelled to renounce the obscure and incomprehensible doctrines of the schools, and to apply himself to the study of the primitive faculties. To this end he visited hospitals and insane asylums, prisons, and the seats of justice; was introduced to the courts of princes, to schools and colleges, and wherever he heard of an individual, distinguished in any way for remarkable endowments, or for deficiency, he observed and studied the developments of his head.

In 1796, Gall, for the first time, gave a course of lectures upon phrenology at Vienna, the place of his residence. These he continued annually for five years; when the Austrian Government issued an order in January, 1802, that they should cease; his doctrines being considered as leading to materialism, and to be dangerous to the cause of morality and religion. The subject, however, continued to be studied with greater zeal than before; the prohibition having strongly stimulated public curiosity, and Gall, finding his success in propagating his new theory, and in raising up friends to its support, greater than was anticipated, in 1804 he associated with him his favourite pupil, Spurzheim. From this time they were constantly together, and their labours were in common.

In March, 1805, Gall and Spurzheim left Vienna

in company, and travelled through Germany, Prussia, and Switzerland, to France; visiting most of the considerable towns and villages, and every where teaching their doctrines, and studying the organization of man. But they stopped only a short time in any one place; too short a time, says Gall, to form practical pupils. "The principles were explained, the developments shown, and we were off." Dr. Gall even gave the advice not to repeat the experiments, since it was difficult to do so.

It was at Berlin, and the fortress of Spandau, where they first put their doctrine to the test of experiment, by its application to congregated multitudes. Here, in the presence of the chiefs of the establishment and others, they were conducted to the prison at Berlin, where upwards of two hundred culprits, of whom they had never heard till that moment, to whose crimes and dispositions they were total strangers, were submitted to their inspection. Dr. Gall, it is said, not only discovered with surprising readiness, their natural propensities, but also indicated the offence for which each was imprisoned. A few days after, they made a visit to Spandau, where four hundred and seventy heads were submitted to inspection, and with a similar result.

In November, 1807, Gall, assisted by his zealous associate, delivered his first course of lectures in Paris; supported by a numerous collection of skulls, heads, and casts; and by a multiplicity of physiological and pathological facts. Great was the ardour excited among the Parisians by their presence; teaching, as they did, a new doctrine,

and by which it was supposed they could tell men's fortunes by their heads.

In 1808, Gall and Spurzheim presented a joint memoir on the Anatomy and Physiology of the Brain, to the French Institute, which at that time was in its full glory, and one of the first scientific societies in Europe. The chief of the anatomical department was M. Cuvier, and the first member of this learned body to whom Drs. Gall and Spurzheim addressed themselves. He received the German Doctors with politeness, attended their lectures, and witnessed their dissections of the brain.

A committee was appointed by the institute to report upon the memoir, consisting of Tenon, Portal, Sabbatier, Pinel, and Cuvier; all men of known candour and ability. M. Cuvier drew up an elaborate report, containing within a short compass the whole substance of the memoir; but while it was approved by the institute, it was not such as to satisfy Gall and Spurzheim, or to inspire confidence in their views of the anatomy and physiology of the brain. Some merit was awarded to them for their method of dissecting the brain, and for some other improvements they had made; but many of the discoveries, which they claimed as original, were traced to anatomists who had preceded them, and their main positions were regarded as extremely hypothetical. Such was the reception which phrenology met with from the French institute.

In 1809, Gall and Spurzheim commenced publishing the great work, entitled, *the Anatomy and Physiology of the nervous system in general,*

and of the brain in particular, with observations upon the possibility of ascertaining several intellectual and moral dispositions of man and animals, by the configuration of their heads, four volumes folio, with an atlas of one hundred plates, the completion of which occupied ten years.

In 1813 they separated, and from this time each pursued his phrenological investigations by himself. Dr. Gall made Paris his home, and acquired great notoriety, considerable distinction as a writer and philosopher, and realised a handsome fortune. He died in 1828, of a paralytic shock, in the seventy-second year of his age. He was followed to the place of interment by an immense concourse of friends aud admirers, five of whom pronounced discourses at his grave. His death gave rise to a succession of eulogiums and of attacks in the French newspapers.

Spurzheim, while he considered France his residence, travelled extensively through Germany, Switzerland, Prussia, England, Scotland, and Ireland, making observations, teaching phrenology, and collecting facts.

He returned to Paris to reside in 1817, where he regularly gave two courses of lectures upon phrenology annually, but complained that during his abscence the subject had in a great measure been laid aside and forgotten. In 1824 he married a lady of fine talents and accomplishments, who entered deeply into the spirit of his enterprise. This event seems to have given a fresh impulse to his investigations, and to have inspired him with increased zeal in extending the influence of phrenology.

In 1832, Spurzheim visited the United States. His objects were to study the genius and character of our nation, and to establish and propagate the doctrines of phrenology. He landed in New York on the fourth day of August, and travelled almost immediately to Boston. Here he was received with all the respect and kindness for which the inhabitants of that city are so distinguished in their treatment of strangers. He was conducted to the various public and private institutions of the city; was introduced to the literary and scientific personages of distinction; and every thing was done to render his stay agreeable, and to promote the objects of his visit. He was invited to deliver lectures, to examine heads, and to explain his doctrines. But he had scarcely entered upon his career, when he was struck down by a fever, of which he died on the tenth of November, in the fifty-sixth year of his age. His remains were interred at Mount Auburn, with every mark of respect, where a neat and beautiful monument has been erected to his memory, by the generous and high-minded citizens of Boston.

Long before the arrival of Spurzheim in this country, his works, as well as those of Gall, had been extensively circulated and read; and it is doubtful whether any country has given the subject of phrenology a more respectful consideration than the United States. Works have been written upon the subject, societies have been formed, lectures delivered, and zealous and able advocates have been raised up to spread and defend its doctrines. At this time there is scarcely a town or a

village in which its general principles are not more or less understood.

The works of Gall and Spurzheim are numerous, and evince great industry and perseverance, deep research and reflection, and, aside from phrenology, contain a great deal of general information. Most of their books have been republished in the United States.

Such is a brief sketch of the history of phrenology, as furnished by Dr. Gall and his friends. Whether he was the originator of the science, or derived his first intimations upon the subject from some previous writers, is a question which I shall not discuss. Certain it is, that ideas, in many respects similar to those of Gall, were entertained and promulgated long before his time.

Aristotle, the Grecian philosopher, who wrote more than three centuries before the Christian era, considered the brain as a multiplex organ, and assigned to each part its appropriate functions.

In the forepart of the cerebral structure he places common sense; the middle portion he assigns to imagination, judgment, and reflection; the back part he makes the great storehouse, or seat of the memory.

This was the account of the divisions of the brain given by Aristotle, and however crude it may appear in its details, it was followed by many writers in the middle ages, with but little variation. But while he regarded the brain as multiplex, he considered a small head as the standard of perfection, and contends that it is indicative of

a superior intellect. In this respect he is at variance with Dr. Gall, and other phrenologists of the present day.

From various passages found in the works of Galen, it is evident that he was acquainted with the views of Aristotle upon this subject, and that he admitted the same doctrines, with some modifications.

As late as 1296, Bernard Gordon, an eminent French physician and teacher at Montpelier, closely follows Aristotle in his divisions of the brain, and appropriated to each part particular faculties.

In the thirteenth century, Albert, the Great Archbishop of Ratisbon, one of those who had laboured long for the discovery of the philosopher's stone, actually formed a head, mapped out into regions in conformity with the divisions of the brain by Aristotle and others.

In 1491, Peter Montagnana published an engraving of the head, in which he represents the seat of the *sensus communis*, a *cellula imaginativa*, a *cellula estimativa seu cogitativa*, a *cellula memorativa*, and a *cellula rationalis*.

Michael Servetus, who died at Geneva, 1553, places the different mental faculties in different parts of the brain. He supposed that the two anterior cerebral cavities were for the images of external objects; the third ventricle the seat of thought; the aqueduct of Sylvius the seat of the soul; and the fourth ventricle the seat of the memory.

In 1562, Ludivico Dolci, a learned Venetian, published a work upon preserving and strengthening the memory; and in illustration of his prin-

ciples, he mapped out a head into regions, more elaborately than any one which had previously been formed.

In a work of Jo. Baptistæ Portæ, an eminent Neapolitan philosopher and physician, published at Leyden, 1586, entitled, De Humana Physiognomia, there is contained so many of the principles and illustrations of the phrenology of the present day, that it may well be questioned whether hints have not been drawn from this source by later writers. He proposes to discover the intellectual and moral character of man, by his physical organization, colour, &c., and while he embraces the whole body, he lays particular stress upon the configuration of the head. He finds analogies between the human species and several races of the brutes; but discovers the general characteristics of man in the lion, and of woman in the leopard; and concludes by arranging under appropriate heads, the various signs by which the intellectual and moral character and disposition of every individual may be determined.

A folio edition of this work is found in the library of Havard College, and contains a large number of plates of the heads of persons placed by the side of those of certain animals, illustrative of his doctrines; a few copies of these I am enabled to exhibit to the class, through the kindness of Professor Greenleaf.

As late as the middle of the seventeenth century, the celebrated Dr. Thomas Willis, a graduate and for some time a physician at Oxford, and afterwards physician to King Charles II., published a work, in which he asserts that the corpora striata

are the seat of perception; the medullary part of the brain that of memory and imagination; the corpus callosum that of reflection; and the cerebellum, he considers as furnishing the principle of voluntary motion.

But by far the nearest approach to modern phrenology was made by that extraordinary man, Baron Swedenborg, the author of the system of doctrines of the New-Jerusalem Church. He not only considered the brain as composed of a plurality of organs, but maintained the principle that the exercise of the different faculties of the mind changes the configuration of the head, by promoting the development of their respective organs. The following extract will give an idea of his views upon this subject, and will shew the authenticity of the source from which they are taken.

Capt. F. Walden published at Copenhagen, in 1806, a biography of the celebrated Swedenborg, along with some extracts from his writings. It is very remarkable, as is shewn by this work, that the distinguished Swede, about fifty years previous to Dr. Gall's theory, should have entertained a very similar opinion. The following are the words of Swedenborg: "Every man that is born has a disposition to all sorts of evil, which must be checked by education, and, as far as possible, rooted out. This is first to be attempted by correction and punishment; then by good society and example, which lead to imitation; and at last good is secured upon a true and reasonable religious root. When these conditions are all observed, *it is indicated by the beautiful skull of the individual.* On the contrary, should the edu-

cation be neglected, or no sudden misfortune, nor opposition, hinder the first outbreakings of evil or disorder, the evil afterwards becomes habit, and produces peculiar wishes, both in design and practice, *which cause the formation of a badly shaped skull.* The cause of the difference of skulls, in such cases, is this: The peculiar distinctions of man, will and understanding, have their seats in the brain, which is excited by the fleeting desires of the will, and the ideas of the intellect. Near the various spots where these irritations produce their effects, this or that part of the brain is called into a greater or less degree of activity, and *forms along with itself corresponding parts of the skull."**

But I will not detain you with further details upon the history of the science. Those of you who may wish to pursue the investigation, will find the subject amply discussed by that erudite and able author, Professor Dunglison, in his admirable work on Human Physiology, in his account of the mental faculties.

I will only remark, that the fact, that the early writers knew something of Phrenology, affords but slender proof that Dr. Gall borrowed his notions

* In a periodical, entitled, "The *Intellectual Repository and New Jerusalem Magazine*,"—the authentic organ of the body which adopts the theological views of Swedenborg, the existence of this passage in any of the works of Swedenborg is unequivocally denied in a paper signed S. NOBLE, who is one of the ministers of that church. From his extensive acquaintance with the works of the author in question, Mr. N. is able most distinctly to state that "*no such* passage is to be found in any part of Swedenborg's works" (p. 144. No. 51, for May, 1838.) The fabrication of the passage is attributed to Capt. Walden, in whose works, no doubt, Professor Sewall found it.

from them; since it is extremely common for men of genius to make the same discoveries, strike out the same trains of thought, and pursue the same course of investigation without concert, or the slightest knowledge of each other's pursuits.

Whatever may be the truth with regard to the origin of Phrenology, it is through the writings of Dr. Gall, supported by the untiring labours and invincible zeal of his pupils and disciples, that the science has been widely spread through the civilized world. And it is by these labours, and by this ceaseless spirit of exertion, that the subject has been brought to our shores, and has afforded the occasion to investigate it, and ascertain whether it furnishes us with that infallible guide in the study of human character, which has been pretended.

It seems proper that we should investigate it, because it has enlisted so many men of talents in its support, and become a subject of so much interest as to excite discussion in almost every circle, and on every occasion; and, because, too, it is represented to be a science, the knowledge of which is all important to the well-being of society. A science which its authors and disciples gravely tell us, looks down with compassion on the shallow distinctions, and puerile speculations of *Locke*, *Hume*, *Berkley*, *Hartley*, *Reed*, and *Stewart*. These men tell us that up to their own time, the philosophy of man was a perfect waste, and that the discoveries of Newton himself were comparatively insignificant; while that of Phrenology is the greatest and most important that was ever communicated to man.

The discoveries, says Mr. Combe, of the revolution of the globe, and the circulation of the blood, were splendid displays of genius in their authors, and interesting and beneficial to mankind; but their results compared, with the consequences which must inevitably follow from Dr. Gall's discovery of the functions of the brain, sink into relative insignificance.

It may be well, therefore, that we should look into a science, which holds up these lofty pretensions, and ascertain how far it is entitled to confidence.

My object on the present occasion, will be briefly to present to your view *some of the leading principles of Phrenology*, and then to ascertain *howfar these are sustained by the anatomical structure of the parts more immediately concerned.*

1. Phrenology, like most systems of mental Philosophy, makes the brain the material organ of the mind.

2. It assumes the position, that just in proportion to the volume of the organ, other things being equal, will be the power of the mental manifestations.

3. That the exercise of the mind promotes the developement of the brain.

4. That the character of the mind is to be determined by the configuration of the brain.

5. That the brain is a multiplex organ, and composed of a definite number of compartments, or sub-organs, each of which is the appropriate seat of a propensity, sentiment, or intellectual faculty.

6. That the mind consists of a definite number of original powers, which are divided into propensities, sentiments, and intellectual faculties.

7. That to the existence of each original propensity, sentiment, or intellectual faculty, a specific cerebral organ is necessary, and that every specific mental operation can be performed, only by means of an appropriate organ.

8. That the brain is composed of at least thirty-four phrenological organs, or pairs of organs, all commencing at the medulla oblongata, or top of the spinal marrow, and radiating to the surface of the brain. That they commence at a point, and like so many inverted cones, become more and more voluminous, until that portion, which is bounded by the walls of the cranium presents a surface corresponding in form, size, and situation, with the figured skulls, delineated in plate I., figs. I., II., and III.

9. That just in proportion to the development, or size of these organs or cones, will be the strength of the particular faculty of which it is the residence. The size of the organs to be estimated by their length and breadth, and consequently that each prominence of the skull indicates the degree of development of that organ of the brain, which is located immediately under it, and of course the power of intellectual faculty, sentiment, or passion, of which it is the residence.

10. That the exercise of any particular faculty of the mind, promotes the development of the appropriate organ of such faculty.

It is upon the principles here laid down, that the whole system of Phrenology is based.

Concentrativeness. The faculty produces the instinctive tendency to attach ourselves to surrounding objects, animate and inanimate, and to embrace and cling to the object of our affection. It disposes to friendship, and society in general. It often shows itself in attachment to horses, dogs, and other animals. When largely developed, it produces excessive grief at the loss of friends, and in leaving one's country, the disease called Nostalgia, so common to the Swiss. When feeble, it may render a man an Anchorite or Hermit.

5. *Combativeness.*—Situated on each side of the head, at the inferior mastoid angle of the parietal bone. The organ, when full, produces active courage; and if very full, a propensity to attack. A considerable endowment is indipensable to a great and magnanimous character. It gives that boldness to the mind, which enables it to look undaunted on opposition, to meet, and if possible to overcome it. When largely developed, it inspires with the love of contention, leads to a quarrelsome disposition, and imparts pleasure in disputation and fighting. When deficient, the individual cannot resist attacks, nor make his way, where he must invade the prejudices, or encounter the hostility of others. The organ is generally large in persons who have murdered from the impulse of the moment. It is large in Robert Bruce, David Haggart, Mary Macianes. It is large also in the Charibs, and small in most of the Hindoos.

6. *Destructiveness.* — Situated immediately above, and extends a little backward and forward, from the external opening of the ear, and

corresponds to the squamus plate of the temporal bone. The faculty produces the impulse to destroy in general. Combativeness gives the desire to meet and overcome obstacles, and having vanquished them, the mind under this inspiration pursues them no farther. Destructiveness prompts to extermination. Anger and rage are the manifestations of this passion, and cruelty is the result of its excessive energy, uncontrolled by benevolence and justice. In cool deliberate murderers, the organ is conspicuous, and in those who delight in cruelty. It is large in hunters, and keen sportsmen, without exception. It is large in the bust of Dean, Pallet, Thurtell, Heaman, and in the skulls of Bruce, Gordon, Hussey, Nisbet, Bellingham, Buchanan, Rotherham, Albert, in the skull of Tardy, the pirate, and it is said to be very large in the head of a living Scotch divine of great celebrity, now residing in Edinburgh.

7. *Constructiveness.* — Situated immediately over, and adjoining Destructiveness. When very fully developed it produces unusual breadth of the head, from temple to temple. The faculty inspires with the tendency to construct in general, but the particular direction in which it is exerted, depends on the other predominant faculties of the individual. If combined with large Combativeness and Destructiveness, it may be employed in fabricating implements of war. If joined with large Veneration, it may tend towards erecting places of religious worship. If joined with large Form, Imitation, and Secretiveness, it may inspire with a love of portrait painting. The organ is indispensable to all who follow operative mecha-

nical professions. It is large in Raphael, Brunel, Herschel, and Perkins. It is small in the New-Hollanders. It is large in all animals distinguished for their ingenuity in building, as the beaver, field-mouse, and the like.

8. *Acquisitiveness.*—Situated immediately behind Constructiveness. Its function is the love of acquisition generally, without reference to the use to which the objects when obtained, may be applied. It takes its direction from the other faculties, and hence may lead to the collecting of coins, minerals, and other objects of curiosity, or of science, as well as money. If men had always provided only what they could individually enjoy, they would never have emerged from a savage condition. It is the foundation of wealth, of covetousness, and of luxury, in civilized life. When largely developed, and not regulated by their higher faculties, it often leads to dishonesty, and even theft. A chaplain in the Prussian army, in whom it was large, in other respects a worthy and pious man, was remarkable for stealing pocket-handkerchiefs, pen-knives, books, and ladies' stockings, and indeed every thing portable, in the nature of property. It is large in Heaman, and small in Robert Bruce.

9. *Secretiveness.*—Situated immediately above Destructiveness. Its function is the love of secresy, and the ability to conceal. It may be applied in a great variety of ways, according to the dictate of the other faculties. When properly developed, it exercises a salutary restraint on the other faculties, and is indispensable to the formation of a prudent, cautious character. When

largely developed, and not properly balanced by the higher faculties, it leads to management, lying, duplicity, and deceit. It has been found prominent in a large number of habitual thieves. When properly controlled, it augments the efficiency of character. In Courts and Cabinets, it is a powerful engine. It is the diplomatist's sword and buckler. The fox, and several animals of the cat kind, are remarkable for it. In some of the human race, it is almost their only power. In writing, it leads to irony. It is full in great actors. It gives a side-long glance, and a watchful look to the eye, and where large, inspires in the individual, the desire to discover the designs of others, while he conceals his own. Is large in Raphael and Bruce, in the American Indians, and in the Hindoos.

II. Sentiments.

10. *Self-esteem.*—Situated at the vertex under the sagittal suture. Its function is Self-Esteem, or self-love in general. It imparts to the mind that degree of confidence in its own powers, which is essential to their successful application. When combined with the superior sentiments, and intellectual faculties, it contributes to true dignity and greatness of mind. A deficiency of it produces a want of personal confidence, and a proper estimate of what is due to one's self. When too strong, it produces arrogance, conceit, pride, egotism and envy. The English have this organ fuller than the French. The turkey-cock, the peacock, and the horse have it strongly marked. When the organ is morbidly excited, as in some cases of mo-

nomania, the individual is prone to imagine himself a king, an emperor, a transcendent genius, and even the Supreme Being himself. It is large in Haggart, in Dempsey, and in the Hindoos, but small in the American Indians.

11. *Love of Approbation.*—Situated on each side of Self-Esteem. Its function is love of approbation or applause. If directed to objects of importance, it becomes a lofty and noble ambition, and leads to corresponding efforts and achievements; but when its objects are low and trivial, it degenerates into vanity, and leads to frivolity. It is more prominent in women, than in men. It is always large in bashful persons. It is very large in the dog, the horse, &c. Large in Bruce, and in the American Indian.

12. *Cautiousness.*—Situated in front of No. 11. Its function is the sentiment of circumspection, or impulse to take care. Regulated and sustained by the other faculties, this sentiment becomes prudence, but if not thus modified, it degenerates into irresolution, instability, doubt, demur. It is particularly large in children. The organ is large in Bruce, Raphael, and in the Hindoo. Small in Bellingham, and the Negro.

13. *Benevolence.*—Situated at the central and upper part of the frontal bone, in the direction of the sagittal suture. Its function is the sentiment of kindness, connected with the desire of the happiness of others, and disposes to compassion, and to active benevolence. It communicates mildness and cheerfulness to the temper, and prompts to charity, in its various relations. Dogs, horses, and monkeys, which have the organ full, are mild

and pacific. It is depressed in all the ferocious tribes of animals, and also in nations remarkably for cruelty, as the Charibs.

The five following organs are proper to man, and constitute the line of demarcation between him and the inferior animals.

14. *Veneration.*—Situated immediately behind and adjoining benevolence. Its function produces the sentiment of respect and reverence of superior beings, either human or divine. It enters largely into the constitution of a devoted Antiquary. It is also the chief element in filial piety. When the organ is large, and Self-esteem small, humility is the result. Its existence shows that religion has a foundation in nature. The full development of the organ tends to produce baldness; and it is asserted, that of any given number of men of equal age, in a place of public worship, those who are bald are the most devout. They kneel lower, and respond louder than others.

15. *Hope.*—Situated on each side of veneration. Its function produces the tendency to believe in the possibility of what the other faculties desire. It inspires with gay, fascinating, and delightful emotions, painting futurity fair and smiling. It gilds and adorns every prospect with shades of enchanting excellence, while cautiousness hangs clouds and mists over distant objects. In religion this faculty favours the exercise of faith, and disposes to a belief of a life to come. In short, it is the castle-builders' home, his heaven, his consolation in disappointment, his panacea for every evil. It is the cynosure to which his soul perpetually points.

16. *Ideality.*—Situated above 7 and 8. Its

function is to give exquisiteness of feeling. It is the fountain of enthusiasm, not only of the poet, but of the philosopher, the orator, the painter, the sculptor, the philanthropist, and of the high minded warrior. It is the organ of poetry, and confers a relish for poetry on those who do not write. It gives refinement and taste. It communicates to eloquence its splendour and soul, and to conversation its highest charms and brilliancy. It gives a fondness for vivid description, and often a tendency to exaggeration. The organ is large in Raphael, Voltaire, Wordsworth, Burke, and Haydon, and is small in Hume, Bellingham, and in the New Hollanders.

17. *Consciousness.*—Situated behind No. 15. Its function is to give the sentiment of right and wrong, of unspotted justice, and pure morality. It commands the other faculties to the performance of their duty. Its strength is not always in proportion to that of the other faculties. In men of feeble intellect, it is sometimes very powerful; such men do their duty for conscience sake, and are delighted with the observance of right, and disgusted with the doing of wrong. When the organ is small, the individual is prone to do an unprincipled action, if tempted by interest or inclination. He experiences a difficulty in perceiving the quality of justice, and in feeling its obligations. The organ is large in Hette, and small in Bruce, Bellingham, and Gibson, and in most of the savage tribes.

18. *Firmness.*—Situated at the upper and posterior part of the head, between Nos. 10 and 14. Its function is to give firmness, constancy, and

perseverance. When powerfully developed, and not properly regulated by the other faculties, it produces obstinacy, stubborness, and infatuation. When weak, the individual is prone to yield to the impulse of his feelings. If benevolence assumes the sway, he is all kindness; if combativeness and destructiveness are forcibly excited, he falls headlong into passion, outrage, and violence. He finds great difficulty in pursuing any established line of action, and is prone to change. The organ is large in Bruce, and in the American Indian, and small in Gibson.

III. Intellectual Faculties.

19. *Individuality.*—Situated in the middle of the lower part of the forehead. Its function is to give the faculty of practical observation, and the capacity to acquire knowledge in detached parcels, but not to put it well together. The possessor is full of matter for conversation and anecdote, but is a mere detailer of facts, which he seldom attempts to classify. He is a man of extensive information, rather than a profound philosopher. When the organ is full, and is aided by Comparison, it leads to personification, and to metaphorical writing, such as distinguished Bunyan. The organ was large in Roscoe and Swift, and moderate in Voltaire and Haydon.

20. *Form.*—Situated immediately under the root of the nose. Its full development gives breadth between the eyes. Its function is to give the faculty of distinguishing form and figure. It was large in King George III., and is also large in the Chinese.

21. *Space.*—Situated above and on each side of the root of the nose. Its function is the faculty to judge of size and space without reference to form. It imparts the power of perceiving and judging of perspective. It was large in Williams and Douglas, and small in Ferguson.

22. *Weight, or resistance.*—Situated contiguous to that of form. It is largely developed in those who excel in archery and quoits, and in those who judge accurately of momentum and resistance in mechanics. It was large in Maclachlan.

23. *Colour.*—Situated near the centre of each eye-brow, so that the full development of it gives to the brow a beautiful arch, or an angular direction upwards and laterally. Its function is to distinguish, enjoy, and mix colours. It is found in the portraits of Rubens, Rembrandt, Lorraine, &c. It is full in the Chinese.

24. *Locality.*—Situated immediately above and adjoining No. 21. Its function is a faculty to perceive and judge of space and distance, and to remember and enjoy localities. It produces a fondness for travelling, and constitutes a chief element in the talent for topography, geography, astronomy, and landscape painting. It assists the traveller in finding his way to places he has visited, and gives to him an accurate and vivid recollection of them. This organ is very prominent in the casts of Columbus, Sir Isaac Newton, Galileo, and in Volney and Sir Walter Scott. Is largely developed in the dog, and in other of the lower animals.

25. *Order.*—Situated adjoining 23. Its func-

tion is the perception and love of order, without regard to classical arrangement. Those who have the organ large, cannot bear to see any thing out of its place. They are neat and precise in the arrangement of their wardrobe, library, household furniture, &c. It is full in Humboldt.

26. *Duration.*—Situated immediately above, and adjoining No. 23. Its function is a lively and accurate perception of abstract duration, and the lapse of time between one event and another.

27. *Number.*—Situated immediately over the external angle of the eye. Its function is the power of calculation. It is full in the bust of Newton, and is large in the portraits of La Place and Humboldt.

28. *Tune.*—Situated immediately above No. 27. Its function is the love and enjoyment of music. The organ, when strongly developed, gives breadth to the face; hence high powers of music are rarely connected with a narrow face. The masks of Handel, Haydn, Gluck, and Mozart, are distinguished by the full development of this organ. The heads of certain singing birds are also strongly marked.

29. *Language.*—Situated immediately under the eyes, rendering those organs prominent when fully developed. Great linguists have generally prominent, and never sunken eyes. Its function gives a facility of acquiring and using language. Persons who have a great endowment of it, abound in words. Large in Humboldt and Voltaire.

30. *Comparison.*—Situated immediately above 19. Its function is the power and love of Comparison, and it gives the facility of perceiving re-

semblances, similitudes, and analogies. The individual, who has it large, reasons by comparing one thing with another. It prompts to the invention and use of figurative language. It gives great power of illustration. It is the origin of proverbs. Large in Pitt, Edwards, Burke, Curran, Hume, and in the Hindoos; small in the Charibs.

31. *Causality.*—Situated on each side of 30. Its function is a talent for logical reasoning, and inductive philosophy. It prompts to the investigation of causes and effects, and enables the individual to judge of the direct evidence of facts. A juryman, with large Individuality, and small Causality, will not be disposed to convict upon circumstantial evidence. While he, in whom Causality is large, will often feel that kind of proof to be irresistible. It induces to enquire why and wherefore. It gives the power of analysis. It appears largely developed in the portraits and busts of Bacon, Locke, Franklin, Voltaire, &c.; moderate in Pitt. It is larger in the English and Germans than in the French.

32. *Wit.*—Situated on a line with No. 31. When large, it gives breadth to the upper part of the forehead. Its function is a quick perception of such analogies, as by their novelty excite surprise and agreeable emotions. In the masks of Sterne, Shakspeare, Voltaire, &c., this organ is peculiarly striking.

33. *Imitation.*—Situated on a line with No. 13. The function of this organ is the love of imitation, and an aptitude to practise it; and hence ons, who have it large, are qualified to be-

come mimics, actors, and painters. Large in Clara Fisher, and in Jervis.

34. *Supernaturality, or Wonder.*—Situated between Nos. 16 and 33. The function of this organ is to create a belief in the presence and agency of supernatural beings, and it produces a tendency to believe in inspirations. It begets a fondness for news, and particularly if extravagant. It produces the expression of surprise and astonishment in ordinary discourse, and a turning-up of the exterior angle of the eye-lashes. Such persons as have this organ large, do not distinguish between possibility and impossibility; and this arises from the predominence of Supernaturality over Causality and Conscientiousness.

Having thus briefly described the different organs, their situation and powers, I shall call your attention to their combinations.

Three rules have been laid down for estimating the influence of the difference in size, occurring in the organs of the same brain.

First. Every faculty desires gratification, with a degree of energy proportionate to the size of its organ; and those faculties will be habitually indulged, the organs of which are largest in the individual.

For example: if all the animal organs are large, and all the organs of the moral sentiments and intellect are small, the individual will be naturally prone to animal indulgence in the highest degree.

If, on the other hand, the organs of the moral sentiments and intellect greatly predominate, the individual will be naturally disposed to moral and intellectual pursuits.

Second. Should it happen that several large animal organs are combined with a full developement of several moral and intellectual organs, the rule then is, that the lower propensities will take their direction from the higher powers.

Third. Where all the organs appear in nearly equal proportion to each other, so that the different powers are accurately balanced, the individual will exhibit opposite phases of character, according as the animal or moral and intellectual powers predominate at the time; and he will pass his life in alternately sinning and repenting. If the individual, thus constituted, be brought under external influences, they will operate powerfully upon him, and his conduct will be greatly modified by them.

Fourth. The same may be said of the counteracting and neutralizing influence of the individual organs on each other, as of that which appertains to the different groups.

For example: if the organs of Combativeness and Destructiveness are very full, and those of Veneration and Conscientiousness are also very full, the latter will so counteract and neutralize the former, that the individual may live all his days in quiet, and not once manifest the smallest disposition to combat or murder. Or, if the organ of Acquisitiveness is very large, and that of Benevolence is also very full, the two propensities being thus counterpoised, there may be no especial desire of accumulating wealth manifested, and as little of the spirit of liberal giving. And all the organs may be so accurately balanced, that the good shall counteract the evil desires.

It is, however, a doctrine of Phrenology, that the temperament of the individual exerts a strong influence upon the action of the different organs, and groups of organs; and consequently must be taken into the account, in judging of their activity and power, whatever combinations they may exhibit.

Before I close this lecture, I must call your attention for a moment, to another of the doctrines of Phrenology, which should be understood, in order fully to appreciate the philosophy of the practical application of the science. I refer to what is called the natural language of the organs.

The doctrine is, that the action of the phrenological organs tends to control the attitudes and movements of the body, as well as modify the expressions. That the actions of the body will be in the longitudinal direction of the organs. For example: if the action of Amativeness be strongly excited, and especially if the organ is large, the head will be thrown backward, because the base of the organ is situated in the lower, and back part of the brain; and which is the reason, also, that lovers are prone to bring the back part of their heads in contact, when they approach each other.

Combativeness, when strongly excited, gives a sudden backward and lateral motion to the head.

The proud man carries his head erect, because the organ of Self-esteem has its termination upon the superior part of the brain; while he who is deficient in the development of this organ, inclines his head forward, in an humble attitude.

The devout man bows his head forward, in or-

der to present the organ of Veneration, in the direction of the Deity in the Heavens.

The logician, when he reasons strongly, is prone to press his forehead with his index finger, because of the action going on in the organ of Causality, which is situated in the forehead.

Preachers and advocates, when speaking with animation, move the head in the line of Concentrativeness or Individuality, or straight backward and forward.

Secretiveness, when the organ is full, gives a sidelong glance and a watchful look to the eye.

The organ of Self-esteem, when large in children, causes them to mount on chairs and benches, to make themselves equal in height to grown persons; and adults of small stature do the same, and keep the bodies erect, and have a proud gait.

Those birds, which have this organ large, delight in soaring on the wing in lofty flight, and build their nests in the most elevated situations.

The chamois and goat, which take pleasure in climbing craggy and lofty cliffs, and to graze upon the mountain top, have the organ large.

LECTURE II.

GENTLEMEN,

Having, in my first lecture, exhibited to you the leading doctrines of Phrenology, and explained the principles upon which it is founded, my object in this lecture will be to shew how far the science is reconcilable with the anatomical structure and organization of the brain, the cranium, and other parts concerned.

I adopt this course from two considerations:

1st. From a belief that the anatomy of the parts concerned, is the proper and only standard by which to ascertain its truth.

2nd. That the metaphysical arguments on the subject, while they have been urged with great power, have too often been evaded, and the public mind has not been enlightened, as to the real merits of Phrenology, by the usual methods of investigation. Even the lash of ridicule, under which it has generally been left to wither, has done but little in arresting its progress, or exposing its errors.

The ground which phrenologists assume the right to occupy is so extensive, and the outlets for retreat are so numerous, that it is difficult to present an objection to the science, which cannot, upon the common principles of reasoning, be plausibly evaded. A few examples will illustrate the idea which I wish to convey.

If an individual has a large head, and his mental manifestations are unusually powerful, the case is brought forward as a proof of the truth of phrenology; but if the manifestations are feeble, it is said that the great size of the head is the result of disease, or that the brain is not well organised, or that other circumstances have exerted an influence in diminishing its power. If a small head is connected with a powerful intellect, it only proves that the brain, though small, is well organized, and acts with uncommon energy. If an individual has a particular propensity strongly marked in his character, and there is no corresponding development of the brain, it is said that the organ has not been thrown out by indulging its desires; but if there is a large development of an organ, and no corresponding propensity, then it is contended that the germ of the propensity is there, but that it has been repressed by education, or other circumstances; or it is found that some counteracting organ is fully developed which neutralizes the first. For example: if the organ of Covetousness is large, and the person has no uncommon love of gain, and the organ of Benevolence is also large, it is urged that the action of the one neutralizes that of the other.

I have already mentioned that the temperament also is supposed to perform an important part in modifying the action of the different organs, and for which all due allowance is to be made.

When all these fail in furnishing a satisfactory explanation, another method still more amusing is sometimes resorted to, in relieving phrenology

from embarrassment. It may be illustrated by the following facts:

There is a celebrated divine now living, in Scotland, equally distinguished for his amiable disposition, his gigantic powers of mind, and the great moral influence which he exerts upon the Christian world. This individual, it is said, has the organ of Destructiveness very largely developed, and not having any counteracting organ very large, it is contended by those who are acquainted with the fact, that he manifests his inherent disposition to murder, by his mighty efforts to destroy vice and break down systems of error. In this way he gratifies his propensity to shed blood.

By a recent examination of the skull of the celebrated infidel Voltaire, it is found that he had the organ of Veneration developed to a very extraordinary degree. For him it is urged, that his veneration for the Deity was so great, his sensibility upon the subject of devotion so exquisite, that he became shocked and disgusted with the irreverence of even the most devout Christians, and that out of pure respect and veneration for the Deity, he attempted to exterminate the Christian religion from the earth.

Other explanations, as much at variance with truth and common sense, are resorted to in carrying out the system.

Allowing, therefore, to phrenologists the latitude they claim, it would seem impossible to present a case so contradictory to their principles as not to admit of prompt and plausible explanation.

It is such considerations as these that have induced me to attempt an examination of the prin-

ciples of phrenology, on other than the metaphysical grounds, or its practical application to individual cases.

In pursuing the investigation I shall enquire:

I. How far phrenology is sustained by the structure and organization of the brain?

II. How far facts justify the opinion that there is an established relation between the volume of the brain and the powers of the mind?

III. How far it is possible to ascertain the volume of the brain in the living subject, by measurement or observation?

IV. How far it is possible to ascertain the relative degree of development of the different parts of the brain, by the examination of the living head?

V. Notice a few facts which have been used in support of phrenology, and conclude with some general remarks.

I. How far is phrenology sustained by the structure and organization of the brain?

The brain is that soft, plastic substance, which is contained in the cavity of the cranium. Its weight is computed to average, in the adult, about three and a half pounds, greatly varying, however, in different heads, and in those of nearly the same size. It is invested by three membranes, the duramater, the tunica arachnoidea, and piamater. The former of these is thick, dense, and opake, the two latter extremely thin and transparent. It is divided by a horizontal membrane, the tentorium, into the cerebrum and cerebellum, the latter being connected with the former by an aperture in the tentorium, near its centre. The cerebrum is divided into two hemispheres, the

right and left, by a deep longitudinal fissure, in which the falx of the duramater is situated.

Upon removing the duramater, there are exhibited to the eye, numerous convolutions, rendered distinct by grooves, which separate them to a greater or less depth; but these convolutions do not, in any respect, correspond in form, size, or position, with the bases of the phrenological organs as mapped out upon the figured skull. Phrenologists do not pretend that there is any relation between the one and the other.

The brain, when divided by incision, presents two substances, different in colour and texture, the cortical or pulpy portion, which forms the external, part, and is of an ash colour; and the medullary or fibrous portion, which forms the central part, and is of a beautiful white, and is fibrous in its structure.

The brain is more vascular than almost any other part of the body. By some anatomists it has been computed that one-fifth, and by others that one-tenth, of all the blood of the body is dispensed to this organ; while the brain in weight is seldom equal to one-fortieth of the whole body. It is supplied principally by the carotid and vertebral arteries.

Neither the cortical or fibrous part of the brain reveals, upon dissection, any of those compartments or organs, upon the existence of which the main fabric of phrenology is based. No such divisions have been discovered by the eye or the microscope. The most common observation is sufficient to shew that there is not the slightest indication of such a structure. Indeed no phre-

nologist, after all the investigations which have been made upon the subject, from the first dawn of the science to the present time, not even Gall and Spurzheim themselves, venture to assert that that such divisions of the brain have been discovered.

The fact of the existence of the horizontal membrane, called the tentorium, separating the superior from the inferior part of the brain, as well as the arrangement of the lateral ventricles, the corpus callossum, the fornix, and other parts, clearly shew the absurdity of the idea of organs as described by phrenologists. The notion, then, of the division of the brain into phrenological organs, is entirely hypothetical; is not sustained by dissection; and is utterly inconsistent with its whole formation.

These facts are perfectly well known, and are universally admitted by all anatomists. See plates II. IV. VI. with the explanation.

II. How far do facts justify the opinion, that there is an established relation between the volume of the brain and the powers of the mind?

This enquiry involves one of the fundamental principles of phrenology.

"If," says Mr. Combe, "we take two heads, in sound health, of similar age, in each of which several organs are similar in their proportions, but the one of which is large, and the other small, and if the preponderance of power of manifestation is not in favour of the first, then phrenology must be abandoned as destitute of foundation."

And here it is proper to enquire, whether in speaking of the volume of the brain, its absolute

or relative size is to be understood. If the former, then men of small stature must rank as inferior in intellectual power, to men of large size; and phrenology has also to contend with the fact, that the whale, the elephant, and several other animals of the lower order, have a larger brain than man, while their intellect is inferior.

If the relative size of the brain be intended, then it is necessary to know with what it is to be compared; whether with the dimensions of the face, the size and length of the neck, with the size of the spinal marrow, the cerebral nerves, or with the volume of the whole body. Upon this point, phrenologists have not been explicit.

The difficulty of instituting an accurate comparison of the brain with the first four of them, seems likely to prevent either from becoming the standard; and the great variations to which the body is liable from different causes, losing, as it sometimes does, nearly half its volume, while the brain remains the same, renders this not a more certain criterion. Some facts, however, seem to have afforded the inference, that the power of the intellect is in proportion to the volume of the brain, compared to that of the body; and that just as we descend in the scale of intellectual existence, from man through the various tribes of animals, the brain will be found to be diminished in size. But the investigations of Haller, Wrisberg, Soemmering, Blumenbach, Cuvier, and other anatomists, shew this conclusion to be erroneous, and prove by actual experiment, that it has no foundation in nature. A summary of the result of Cu-

vier's investigations upon this subject, is presented in the following table.

He considers the brain in man, in proportion to his body, as one to thirty; and though it might with more propriety have been calculated as one to forty or fifty, the relative proportion between man and the lower animals is no less certainly ascertained.

Man	1.30
MONKEYS.	
Gibbon	1.48
Saimiri	1.22
Sai	1.25
Ouistiti	1.28
Coaita	1.41
Young Malbrook	1.24
Callitriche	1.41
Mone	1.44
Mongabey	1.48
QUADRUPEDS.	
Mole	1.36
Dogs, different species, from 1.47 to	1.305
Cat ... from 1.82 to	1.156
Beaver	1.290
Rat	1.76
Mouse	1.43
Field mouse	1.31
Elephant	1.500
Sheep ... from 1.192 to	1.351
Ox	1.860
Horse	1.400
CETACEOUS ANIMALS.	
Dolphin ... from 1.25 to	1.102
Porpoise	1.903
BIRDS.	
Eagle	1.260
Goose	1.360

Cock	1.25
Sparrow	1.25
Canary birds	1.14

REPTILES.

Land Turtle	1.2240
Frog	1.170

FISHES.

Shark	1 2496
Carp	1.560

This table shows that four species of the monkey, the dolphin, and three kinds of birds, (the canary bird, sparrow, and cock,) exceed man in the proportion of the brain to the body, and that various other animals are nearly on a level with him.

Nor does the argument in favour of a regular gradation of intellect, according to the size of the brain, hold good in a comparison of the lower animals with each other, their intellectual capacities not being in proportion of the brain to the body. This fact is shewn by the table of Cuvier.

The doctrine, therefore, that man owes his intellectual superiority to an excess of brain, derives no support from his comparison with the lower animals; nor does it appear, from observation, that this is the source of the diversity of intellectual capacity which distinguishes individuals of the human species from each other.

Professor Warren, of Boston, who has probably enjoyed as great opportunities for dissecting the brains of literary and intellectual men of high grade, and of comparing these with the brains of men in the lower walks of life, as any anatomist of our country, if not of the age, says, as the

result of his experience on this subject, that in some instances, it appeared that a large brain had been connected with superior mental powers, and that the reverse of this was true in about an equal number. One individual who was most distinguished for the variety and extent of his native talent, says Dr. Warren, had, it was ascertained after death, an uncommonly small brain.

I might accumulate testimony of this description to an almost unlimited extent, but I will not detain you; and will only observe that, after a careful investigation of the subject, I feel authorized to say, that the experience of eminent anatomists of all times and countries, who have paid attention to the subject, will be found in strict accordance with that of Dr. Warren.

But, for the sake of argument, let us for the time concede this point, and suppose, with phrenologists, that there is an established relation between the volume of the brain and the powers of the mind, and then enquire,

III. How far it is possible to ascertain the volume of the brain in the living subject by measurement or observation.

This enquiry, like the preceding, involves one of the fundamental principles of phrenology.

"By a knowledge of both" (phrenology and craniology), says a distinguished writer upon this science, "the experienced phrenologist is enabled to judge of the *natural amount* and general character of the intellects of individuals, from an inspection of their heads."

And, first, by what means are we to ascertain the volume of the brain?

Phrenologists have provided two instruments for this purpose, viz. the craniometer and callipus.

The former of these is the instrument principally in use, and by it we are told that we can not only measure the volume of the brain, but determine also the size of the individual organs.

It consists of a brass semicircle, connected at the extremities, with two horizontal bars, terminating in a small knob to be placed in the external opening of each ear. By this means, while the semicircle remains fixed at its extremities, its circumference moves freely backward and forward. Attached to this is a sliding graduated scale, which is easily brought in contact with any part of the surface of the head. By this instrument, it is presumed, that the exact size of the head can be ascertained, and as all the phrenological organs are supposed to commence at the medulla oblongata, or top of the spinal marrow, which, being nearly on a line with the two horizontal bars that pass into the external ear, the length of each organ can be ascertained.

Now, allowing all this to be philosophical, it is evident that in order to render this instrument availing, the integuments of the head and the walls of the cranium, must be of a uniform thickness in all persons; or that we must possess some means of determining the degree of deviation from this principle.

In childhood, both the integuments of the head and the walls of the cranium are thin and delicate; in the adult they are thicker, but in old age they are again diminished in thickness. There is also some difference in the two sexes; the male, as a

general rule, having the thicker skull. There are, however, frequent exceptions to this principle.

But besides the change which occurs at the different periods of life, and the difference which usually marks the two sexes, there is often a great diversity in the thickness of the integuments and the skull, in different persons of the same age, sex, and condition, and of which we have no means of judging in the living subject. This fact I have verified by numerous dissections.

I here exhibit a number of drawings, made from skulls in my possession, which illustrate some of the points that I wish to establish.

Plates II. III. V. VIII. represent sections of different skulls, made by passing a saw through them horizontally, about one inch above the superciliary ridge in the frontal, and the same distance above the crucial ridge in the occipital region. These delineations were made from nature, by an eminent artist; are fac-similes, and represent the skull precisely, in form and thickness.

Plate II. represents, by a horizontal section, the skull of a sturdy, athletic waterman, who was drowned in the Potomac. It is scarcely the eighth of an inch in thickness, though it is firm, compact, and in every respect healthy, in its structure.

Plate III. represents, by a horizontal section, the skull of a young and once beautiful female, who came to this city from a neighbouring State, fell into bad company, abandoned the paths of virtue, and died in abject poverty. It is nearly twice the thickness of the former, and is well organized and healthy in its appearance.

Here we have two skulls from healthy indi-

viduals in the vigour of life, the one a male and the other a female; and to render the contrast more striking, the skull of the female is twice the thickness of that of the male. Where is the phrenologist, however experienced, who, by the delicacy of his touch, the keenness of his eye, and these aided by the his craniometer, could have pronounced, that the sturdy waterman had a skull scarcely the eighth, while that of the female was at least one-fourth of an inch in thickness, and been able to make due allowance, and to ascertain the relative volume of the brain in each?

Plate IV. represents, by a vertical section, a skull kindly furnished me by Doctor Smith, Professor of Surgery in the University of Maryland. The subject was an adult male. It is thick, and very compact, and well organized.

Plate V. represents, by a horizontal section, a skull which has also been furnished by Professor Smith. It is that of an adult male, and averages nearly three-fourths of an inch in thickness, and is of ordinary and healthy structure.

Plate VI. represents, by a vertical section, an adult male skull from the cabinet of Professor Smith. It averages nearly one inch in thickness, and appears in every respect healthy and natural.

Plate VII. represents, by a vertical section, the cast of a skull which is from the cabinet of Spurzheim. It was kindly procured and sent me by Professor Warren, of Boston.

The crania delineated in plates IV., VI., VII., which exhibits the vertical section, were prepared for the engraver, by passing the saw through

them perpendicularly, on one side of the median line.

The history of the intellectual character of the individuals whose crania are here delineated, I shall not detail, as the only object of introducing them is, to show the natural and insurmountable obstacles which exist in ascertaining the amount of brain by the measurement or inspection of the living head. Such a history would be entirely irrelevant, as it could in no way aid the phrenologist in his examination.

The difference in their thickness furnishes impressive evidence of the impossibility of ascertaining the volume of the brain by the rules of phrenology.

Besides the crania delineated in these plates, I have in my possession a large number, exhibiting every intermediate degree of thickness, from that of the sturdy waterman to the cast of Spurzheim.

But in order to render this part of the investigation the more satisfactory and conclusive, I have instituted a series of experiments to ascertain the exact amount of brain in the skull, compared wiih its external dimensions. These experiments were made under the immediate inspection and by the assistance of Dr. Thomas P. Jones, of this city, and Professor William Ruggles, of the Columbian College, gentlemen whose high scientific character ensures the utmost accuracy in the results. I am much indebted to these gentlemen for the aid they have afforded me. In the first series of experiments was ascertained the volume of each skull, the brain included. In the

second series the volume of the brain alone, or the capacity of the cerebral cavity.

Then, in order to render the difference in capacity more obvious, the volume of each skull, the brain included, was reduced to the dimensions of seventy fluid ounces.

This table shews the result of these experiments, as extended to five of the skulls delineated in the plates.

	vol. skull, br. included.	vol. brain.
Pl. II.	70 oz.	56.22 oz.
III.	"	51.72
IV.	"	46.21
V.	"	34.79
VII.	"	25.33

In five skulls, therefore, of the same external dimensions, we have a difference in the amount of brain between

II. and III.	of	4.50 oz.
II. " IV.	"	10.01
II. " V.	"	21.43
II. " VII.	"	31.89

In this computation we have a difference in the volume of brain contained in two skulls of the same external dimensions, of 31.89, something more than one half. These experiments have been extended to a great variety of crania, not here delineated; which confirm the above estimate, and shew that the external dimensions of the skull furnish no indication of the amount of brain.

I hold it then to be clearly established that no phrenologist, however experienced, can, by an inspection of the living head, ascertain whether an individual has a skull of one inch, or one eighth of an inch in thickness, nor whether he has 56.22 ounces of brain in volume, or only 25.33 ounces.

With the result of these experiments before you, gentlemen, I leave you to estimate the value of phrenology as a practical science, in determining the powers of the human intellect.

But we will pass on to enquire:

IV. How far it is practicable to ascertain the degree of development of the different parts of the brain, by measurement or examination of the living head?

And here permit me again to call to your recollection the fundamental doctrine already stated, "that by a knowledge of phrenology and craniology, the experienced phrenologist is enabled to judge of the natural amount and *general character* of the intellects of individuals from an inspection of their heads." The amount of intellect being estimated by the size of the head, while its character is determined by the form.

In the investigation of this part of the subject, we shall find that anatomy interposes numerous obstacles to the practical phrenologist, the more important of which I shall briefly notice.

1. Of the frontal sinuses. These are cavities situated in the anterior and lower portion of the frontal bone. To shew the manner in which they are formed, it is proper to state, that the bones of the skull are composed of two tables, external and internal; and that these are united by an intervening lattice work of bony matter, called diploe. In some parts of the skull, this diploic structure is absent; the two tables recede from each other, and cavities of greater or less extent are thereby created. It is in this manner that the frontal sinuses are formed.

Plate VIII. represents, by a horizontal section, the skull of an individual whom I well knew. He was an athletic, labouring man, who became intemperate, and died at the age of thirty. During his life, I frequently remarked, that he had what would be called by Phrenologists, a fine head for the perceptive faculties. His eye was deeply ensconced under a full projecting brow, and the organs of Form, Size, Weight, Colour, Order, Number, Individuality, and Comparison, were uncommonly well developed. His Locality was enormous. We should, upon the principles of phrenology, have pronounced him a Rubens in painting, a Humboldt in arrangement, and in Form, Size, and Weight, a Wren, a Douglas, or a Simpson. The development of his Comparison and Individuality would have placed him by the side of Dean Swift and the Earl of Chatham; and his Locality represented him as quite equal to Columbus, Newton, Volney, and Sir Walter Scott.

But what do we find upon an examination after death? We discover the frontal sinuses to extend over the organs of Individuality, Form, Size, Weight, Colour, Locality, Order, Time, and Comparison; the two tables of bone, separated in some points at the distance of an inch, and the intervening cavities so capacious as to measure one and a half fluid ounces.

Plate VIII. shews the form, size, and situation of the frontal sinuses, by a horizontal section of the skull.

So far, then, from the great apparent development of these organs, being occasioned by a forward protrusion of the anterior lobes of the brain,

the projection was caused by the receding of the inner from the outer table of the skull, in the formation of the frontal sinuses, and the brain is discovered to be actually very deficient in its anterior portion.

I need scarcely observe, that no one presumes to distinguish between that projection which is caused by the full development of the anterior lobes of the brain, and the existence of the frontal sinuses.

Here, then, are nine of the organs, of which no correct judgment can be formed, as to the degree of their development in the living head. From the large frontal sinuses, delineated in this plate, I have skulls in which they are seen of almost every intermediate size, to those which measure only a few grains.

2. The temporal muscle. This is one of the principal muscles of mastication, and from its situation necessarily conceals a number of the phrenological organs. It arises from the temporal ridge, which is in the form of an arch as it passes over the frontal, parietal, and occipital bones, and covers a large part of the lateral portion of the cranium. Its fibres, as they descend from its origin, converge, the muscle becoming thicker, till it passes under the zigomatic process of the temporal bone, to be inserted into the coronoid process of the lower jaw. This muscle is very various in volume, in different persons, being in some twice the thickness that we find it in others. It covers wholly, or in part, the organs of Destructiveness, Constructiveness, Acquisitiveness, Secretiveness, Cautiousness, Ideality,

Number, and Tune. Of the degree of development of these organs, therefore, it is evident we can form no correct estimate, by an examination of the living head.

By means of the frontal sinuses and temporal muscle alone, therefore, we find seventeen out of the thirty-four organs beyond the reach of observation.

3. Let us next ascertain whether the skull is in every part of the same thickness, and whether the two tables, of which it is composed, are every where parallel to each other.

To say nothing of the numerous ridges and grooves which are exhibited upon the internal surface of the cranium, and which vary very much in size, and somewhat also in position, the two tables are not every where parallel; consequently, the skull is not of uniform thickness in every part, and this want of uniformity varies in different heads. I can shew numerous examples in which there is a marked protuberance externally, but no corresponding concavity within. In one skull, we have the organ of Philoprogenitiveness, very full, but it is occasioned only by an increased thickness of the bone at this part. In others, the organs of Causality is very prominent, but so far from finding a corresponding concavity within, the inner table presents a plain surface; and there are frequently considerable depressions within, where the corresponding surface without, does not exhibit the slightest projection. It is also true, that there are scarcely any two skulls which exhibit the same relative thickness in different parts. This is

obvious from an examination of the accompanying plates.

No Phrenologist, therefore, who discovers a protuberance on the skull, can determine whether it is caused by a fulness of the brain, at that part, or an increased thickness of the bone.

4. The great number and diminutive size of the organs, as represented in the figured head, presents a serious obstacle to the phrenologist, in ascertaining their fulness as well as their actual position.

In the forehead, there are no less than fourteen pairs of organs, huddled together in the compass of a few square inches; a space scarcely equal in extent to that appropriated to a single pair of organs, belonging to the department of the propensities, or that of the moral sentiments, and all concealed by the frontal bone.

You have asked, gentlemen, if the specimens of crania delineated in the plates, were not extreme cases; of irregular structure; and to be regarded as exceptions to the general rule. I have already stated, that I possess skulls of every intermediate degree of thickness, from that of the waterman to the cast of Spurzheim; and those, also, which exhibit the frontal sinuses from the size represented in Plate VIII., to those which are scarcely perceptible; and, by visiting the different anatomical cabinets of our country, the same variations will be seen in abundance. But, admit these specimens to be of irregular structure, and to form exceptions to any general rules which the phrenologist may establish for his guide, and the admission is

fatal to the pretensions of the practical phrenologist. The existence of a single exception to the general rule, as to the thickness of the skull, and the size of the frontal sinuses, presents an insuperable objection to the science; unless the phrenologist can point out some means of ascertaining, in the living subject, when such exceptions exist.

How is the phrenologist to know, when measuring the head, whether the skull is thick or thin; whether the frontal sinuses are large or small, and whether the protuberances which he finds on the head, represent corresponding developments of the brain, or are occasioned by an increased thickness of the skull, at the places where they exist?

V. I will now ask your attention to a few facts which bear upon this subject, together with some general remarks.

1. It has already been observed, that phrenology makes the powers of the mind, other things being equal, commensurate with the volume of the brain. This is one of the fundamental principles upon which it is based.

I do not deny that there is a difference in the natural capacities of men, some individuals being endowed with stronger, quicker, and clearer minds than others; but I am far from admitting that this difference depends on the amount of brain, or that the development of the mind in the progress of life, is to be determined by the increased size of the head. If we look round upon the intellectual world, we shall find as many men distinguished for intellectual power, with a head of a small or medium size, and as many with a large

head possessing a feeble intellect, as the reverse of these; and had phrenology in its commencement received a different direction, and a small head, in conformity with the preference of Aristotle, been made the standard of perfection, it would, doubtless, have enlisted as many zealous and confident advocates as are now found in its ranks. It is not the volume of the brain which determines the power of the human intellect. Neither facts nor analogy sustain the proposition. Men of the greatest physical power have not often the largest muscles. This is remarkably true of great runners, wrestlers, and boxers; and the same observations apply with equal force to brute animals. There appears to be far more in the organization and action of parts, than in the mere volume, in giving power.

It has been admitted by a distinguished writer upon phrenology, that the intellect of idiots, where the volume of the brain has been greatly deficient, has been surprisingly improved during the continuance of an inflammatory cephalic fever; and that cerebral inflammation, arising from mechanical injuries, has often added greatly to the vigor of the intellect of ordinary men.

A son of the late Dr. Priestley, says this writer, whose intellect was naturally feeble, fell from the window of a two story house, and fractured his skull. From this time his intellect became greatly improved.

An extraordinary case was recently communicated to the Medical Society of Ghent; that of a young man of naturally very limited intelligence, who lost to the amount of two tea-cups of brain

by a pistol-shot, besides considerable quantities which were discharged at several subsequent dressings. He lived for two years after this occurrence, with his intellect vastly improved.

Accidents of the same nature, followed by similar consequences, are recorded of many others.

Every one who has observed cases of intermittent fever, must have been struck with the increased vigour and activity of the mind during the hot stage of the disease. Men of very ordinary capacity, while under its influence, often rise to a degree of strength and boldness of conception, and brilliancy of expression, truly astonishing. When the brain is excited, whether from moral or physical causes, the mind often acts with vastly increased power, and the individual exhibits all the phenomena of a temporary brain fever.

Who has listened to the debates of Congress during times of high political excitement, or attended the pleadings in the Supreme Court, and has not been impressed with the truth of this observation? I could detail numerous instances illustrative of this remark, but will state only a single case.

The late William Pinkney, of Maryland, whose extraordinary power in debate is universally known, when unexcited, exhibited nothing in his appearance which manifested great activity or energy of mind; but when roused by debate, his face became suffused with blood, his eyes sparkling and animated, his carotids pulsated violently, his jugular veins became swollen, and every thing indicated that the blood was carried to the head with an impetus proportioned to the excitement

of the occasion and his intellectual effort; and it was only during this cerebral orgasm that his thoughts were poured forth with that fluency and power for which he was so remarkably distinguished. The same phenomena occurred, to some extent, in his private studies, whenever he fixed his mind intently on any one subject for the purpose of deep investigation.

It was after one of these cerebral paroxysms of protracted and powerful excitement in the Supreme Court, that the integrity of his brain gave way, and fatal disease ensued.

In his last illness he informed me, that after periods of high intellectual effort, he found the blood rushing to the head, long after the occasion which had excited it had gone by, and that he often found it difficult to compose his mind sufficiently for sleep.

I could point you, were it proper to do so, to many living examples of the same description.

In these cases there is no augmentation in the size of the head; there is no change in its form.

It is evident, then, that there is something which gives power to the mind which has no connexion with the volume of the brain. Whether this is to be found in the peculiar organization of the cerebral structure, the increased energy and action of its vessels, the quantity of arterial blood propelled to the organ by the heart, or to some other cause, is beyond the present state of anatomical and physiological knowledge to determine.

While I admit that there is a difference in the natural capacities of men, I am equally clear that

this difference is utterly insignificant, compared with what is impressed upon the mind by circumstances.

The influence of climate, occupation, literature, science and the arts, commerce and war, civil and religious institutions, the state of society and the modes of life, all exert a powerful influence upon the human intellect; but, above all, it is the discipline of the mind which gives it power. The intellectual, like the physical functions, acquire strength by use; and he who would attain to eminence, must subject himself to the habit of long continued and close application to study, to deep and systematic reflection, severe investigation, and accurate analysis. These give a vigour to the mind that nature never imparts.

But were it true that there is an established relation between the power of the mind and the volume of the brain, the fact would avail the practical phrenologist nothing, as he has no means of ascertaining the amount of brain in the living subject.

2. You have seen that the complex character of the brain, as an intellectual organ, forms one of the leading doctrines of phrenology, and professes to rest mainly for its support on observation. Indeed, the discovery of the fact that there is a coincidence between the protuberances on the skull and the intellectual and moral character of man, Dr. Gall says first led him to the study of the subject.

It is no part of my purpose to disprove this coincidence. Whether there is a correspondence between the external form of the head and the

character of the mind, I leave for future observations to settle. If I have established the fact, that a protuberance on the skull is no proof of a corresponding development of the brain, my end is accomplished; and this, I think, has been clearly shewn.

The idea that the brain is composed of a plurality of organs, and that each has its own appropriate functions, has elicited every argument which could be brought to its support. To sustain the proposition volumes have been written, experiments have been made, and the records of medicine and surgery have been ransacked in pursuit of facts.

If the brain be composed of a plurality of organs, as represented by the figured head, and each is the seat of a separate faculty, it necessarily follows that when any one of these organs is injured or destroyed, its faculty must be injured or destroyed also.

Yet in all the mutilations of the brain to which man has been subjected for two thousand years, it appears that the records of surgery do not furnish a single well authenticated case in which the loss of a particular faculty has happened according to the organ on which the injury was inflicted, while the other faculties remained unimpaired.

We learn from the researches of Drs. Ferrier and Rennels, that a vast variety of cases are recorded in which large portions of the brain have been actually destroyed, and in so many parts of the head, as to dispose of nearly all the phrenological organs in turn, and that not a single case has happened of such partial destruction of intellect

as must have occurred if the doctrine of separate organs be true; and we can hardly find a surgeon who has not met with cases in his practice where portions of the brain have been destroyed by wounds, the consequences of which fully confirm the statement of these writers.

In many of these cases, blindness and deafness have been produced, motion and sensation destroyed, and all the intellectual faculties suspended; but there has not been a destruction of a particular faculty of the mind, while its other powers have remained untouched. How, then, can it be, after the lapse of so many ages, that there are no facts of this description to confirm the doctrines of phrenology? Certainly, it cannot be for the want of an opportunity for observation.

To say nothing of the accidents of private life, there is scarcely a naval or military battle, in which cases of injury of the phrenological organs are not met with in abundance; and yet the science derives no support from this source.

If the theory of a plurality of cerebral organs be true, we might, perhaps, with some shew of plausibility, by mechanical means as well as moral influence, agreeably to the proposition of Emanuel Swedenborg*, endeavour so to modify the developments of the skull, as to promote the growth of the good organs, and repress those that are evil; and thus turn a sour into a sweet temper, and a knavish into an honest disposition. Upon this principle, we might make our heroes and statesmen, our philosophers and divines, our poets and painters, and all of the highest order.

* See note, page 12.

For ought we know, the brain is a unit, and the whole organ concerned in each and every operation of the mind.

That the different faculties of the mind are modified by occupation, is universally known and admitted.

The individual who exclusively cultivates his memory, acquires a facility of retaining facts to an extent inconceivable to those who neglect this faculty; and such persons often make vast attainments in knowledge without the power of arranging or applying it to practice; while the metaphysician, who principally exercises his understanding, arrives at a power of analysis, and of distinguishing cause and effect, known only to those who accustom themselves to long and deep thinking. He, who cherishes his fancy to the neglect of his judgment, acquires an exquisiteness of feeling and refinement which often disqualifies him for the more rigorous exercises of the mind. The will, unbridled, acquires strength, until it gains an omnipotent control over that man who habitually yields to its dominion.

3. An argument frequently urged in the support of phrenology, is the success with which its principles have been applied to practice in distinguishing character. Dr. Gall himself, we are told, subjected his theory to the most rigid scrutiny, with triumphant success; that on several occasions he was enabled to ascertain, by the developments of the head, the precise crime for which multitudes had been convicted and sent to prison.

To expose the absurdity of this argument it is only necessary to bring to view the fact, that men

of the same natural propensities, perpetrate different crimes, when placed under different circumstances; and that individuals of different, and even opposite tendencies, commit the same crimes when placed under circumstances which are sim ilar nay, that men often perpetrate crimes to which they have no natural propensity, but a deep abhorrence, when strongly operated on by external influences.

One man commits murder wantonly, and apparently from the natural cruelty of his disposition; another, that he may inherit a post of honour, or possess himself of fortune; and a third, to conceal another crime which he has already perpetrated.

One individual steals from the mere motive of acquisition; another, that he may possess the means to gratify his sensual desires, or foster his pride or ambition; while a third is impelled to the crime from extreme poverty.

The history of man in every country and age, will shew that nine-tenths of all the outrages committed are the consequence of defective education, bad example, vicious company, or other circumstances which attend the offender, rather than any inherent propensity to the crime perpetrated.

How preposterous, then, to look to the developments of the head as the measure of a man's virtues and vices, or even to regard his known propensities and dispositions as the true index to the history of his life.

Can any one who reflects upon the various circumstances of human life, the incidents which often control man's destinies, the temptations

which assail him in different situations, believe, that of the four hundred and seventy culprits examined by Dr. Gall at the fortress of Spandau, upon which so much stress has been laid, each was convicted of the precise crime for which he had the strongest propensity by nature? As well may we suppose that every one dies of the disease to which he has the strongest natural predisposition; that because a man is predisposed to apoplexy, he cannot die of fever, be buried in the ocean, or be struck down by the lightning of heaven.

4. Again, it is said, if phrenology is destitute of foundation, why is it that it has become a study of so much interest in the circles of literary and scientific men? A moment's attention to the subject will enable us to answer the inquiry.

Phrenology, if it did not originate with, was early espoused by zealous and distinguished advocates. Gall and Spurzheim were both men of genius and of letters, and the latter especially has shewn himself to be a man of extraordinary zeal and perseverance; an eloquent writer, an untiring investigator, and possessed of extensive literary acquirements; and whatever may be thought of his phrenology, it is not denied, that his investigations of the nervous system have contributed something to physiological science; and more especially, that they have excited a spirit of inquiry in others which has led to important results. We still have living advocates of phrenology who justly rank among the most eloquent writers of the age. Mr. Combe, of Edinburgh, is scarcely surpassed for the beauty of his style, his command offacts, the richness and facility of

his illustrations, as well as for philosophical observation. Nor is our own country destitute of men of ability and high literary attainments, who give all their influence to the support of phrenology.

These writers have intermingled with their doctrines so much of philosophy and truth, have introduced so many novel facts and illustrations, and have exhibited the whole subject in such an aspect, as to render the study exceedingly captivating.

But, beyond, all this, there is another, and deeper principle, which disposes men to the study and belief of phrenology.

From the earliest history of man, he has ever been seeking after something which would solve all difficulties, reveal all secrets; and something too, which savours of mystery or of miracle.—Something to supersede tedious observation, and laborious research; and if this principle of his nature has not always been manifested in a pursuit of the philosopher's stone, or animal magnetism, it has shewn itself in projects equally unattainable and futile.

It is true, also, that the study of the human mind, and the development of the human character, have ever been favourite objects of attention. But upon the common principles of investigation, judging of men by their actions, his progress is slow, and the result doubtful. To avoid this delay and uncertainty, men have been impatient to discern some broad principle, some external sign, by which to judge of the character of the mind, and reveal the hidden emotions of the soul.—Every age has afforded proofs of the justness of

these remarks. The speculations of Aristotle, Albert the Great, Montagnana, and Dolci, all evince this propensity, and seem only to be premonitory of the present system of phrenology.

At one time, we find a Porta attempting to ascertain the character of men, by discovering in them resemblances to certain animals of the lower order. At another period, the physiognomy of Lavater becomes the universal guide. Next, the facial angle of Camper is made the measure of the human intellect. These have all been put forth, under the most confident assurances of their truth, and the sanction of great names. Each has flourished for a time; has been tested by experience and observation, and been abandoned. Phrenology has taken their place. Whether this, also, is destined to the same end, remains to be seen.

Is it strange, then, when we are told that a science has been discovered, by which the character and capacities of the human mind can be ascertained; the secrets of the heart disclosed, and this, too, by a momentary examination of the exterior of the head, that we should find men who will study and advocate its doctrines?

In concluding my remarks, gentlemen, upon phrenology, a subject which has withdrawn, I fear, the attention of many able minds from far nobler objects, allow me to suggest some considerations in relation to your future pursuits, and the duties which you owe to yourselves, and to the world.

You will soon be called to exchange the quiet scenes which now surround you, for the more

public theatre of life, and to unite with your present intellectual pursuits, the arduous, practical duties of society. High and honourable is the trust to be confided to you, and it will, doubtless, be assumed with a suitable sense of your responsibility, as well as with a steadfast resolution, that no reasonable expectations on the part of your friends, or the community, shall be disappointed.

If there are some things in prospect which cause you to tremble, there are many also that meet the eye, calculated to cheer you, and to suggest, at the same time, the nature of those objects which more especially demand your attention.

Providence has assigned your sphere of action in a country boundless in extent and inexhaustible in its resources; blessed with a free constitution and with civil and social institutions, calculated to encourage the boldest enterprises, and to ensure to your exertions the highest rewards; a country unparalleled for the free unembarrassed facilities of applying moral, physical, and intellectual power to the great purposes of life. The field which lies before you is vast in the number, as well as the magnitude of its objects, and is constantly enlarging from the discovery of new sources of wealth and of labour in every portion of our land.

If we turn our eyes to the Atlantic coast, we behold, disembarking from ships which throng our harbours, a countless multitude of adventurers from every clime, the tide of foreign emigration rolling in like a flood, and the cities of the seaboard crowded with population and loaded with

wealth. If we turn to the great West, but recently the hunting ground of the savage, we see the noblest and richest valley in the world, its forests falling before the hardy pioneer, and towns and villages rising as by the touch of enchantment. And turn where we may, we see the demand for moral and intellectual effort, keeping an even pace with the footsteps of enterprise.

The period, too, in which you are called to active life, is unprecedented for the rapid advancement of society in great practical improvements. In a few years you may live through more events of interest, than whole generations which have preceded you. In our day, from the influence of moral and physical causes which are in operation, the well directed energies of one enterprising spirit will accomplish more than the combined exertion of multitudes in a former age. But it is not as champions of some brilliant theory, which attracts attention because of its mysterious and extravagant character, by which you can become useful, and acquire a desirable reputation. It is practical talent which is in requisition throughout our whole country, and this supported by decision, energy, and action; and it is by your own exertions that a renovating power is to go forth. Endeavour then to cultivate a deep sense of your personal responsibility, and realize that you are accountable for every hour of time, for every impression you make, for every sentiment you advance. Never had any people higher destinies than ours to fulfil, or less excuse for pursuing shadows, or indulging in airy speculations.

In determining the objects of your pursuit, let

me admonish you, that the period of human life is so short, the objects to which it can be directed to purpose so few, and those which invite your attention so numerous, that a judicious selection and limitation of them is indispenable to eminent success.

Men are too liable to be engrossed by the novelties of the day, and to be led away by those subjects which serve only to amuse, not to instruct the mind. How many great minds, capable of the highest effort, have dissipated their powers by the multiplicity and uncertainty of their pursuits? Do not weaken your minds by feebly grasping at every thing; and while you limit the objects of your attention, be sure that those you aim at are within the reach of attainment; and that they are such, too, as will render you useful, as well as distinguished, members of society.

Let me not be understood to discountenance, or undervalue, that sublime science, the philosophy of the human mind. Nothing will contribute more to give you a commanding influence, and to render circumstances subservient to your purpose, than a deep knowledge of the human character. Some men of great talents, and of high scientific attainments, have utterly failed of success in practical life, from an ignorance of men, and an inability to adapt their knowledge to the circumstances in which they have been placed. But this knowledge is not to be sought in the study of man's physical organization, any more than the value or brilliancy of a jewel in the form of the box which contains it. There is no short way to the philosophy of the human mind. Man must

be studied, as he ever has been, and that too, with the most eminent success, by close and accurate observation, and an actual mingling with mankind in the various stages and conditions of life. In the language of Napoleon, that great practical philosopher, whose knowledge of human nature was one of his most wonderful attainments, I would say—"Nature does not reveal her secrets by external forms. She hides and does not expose her secrets. To pretend to seize or penetrate human character by so slight an index," (as the developments of the head) "is the part of a dupe or an imposter. The only way of knowing our fellow-creatures, is to see them, to haunt them, to submit them to proof. We must study them long if we wish not to be mistaken; we must judge of them by their actions. This is my opinion, and this has long been my guide."

Beware, gentlemen, of that delusive science, which pretends to detect and mark the countless varieties of human character, and gauge and measure the capacities of the human soul, by a graduated scale of brass; a science which finds an apology for the vices and follies of mankind, in the forms bestowed upon them by a good and all-wise Creator.

Let me caution you, also, to distrust its application to yourselves, as well as to others, and not to rely on any native endowments, you may thereby be induced to attribute to yourselves, for the stations you may aspire to in life. What rank you shall hold among intellectual men, depends on your own exertions. The mind, not less than the body, is susceptible of inconceivable improve-

ment from the culture it receives. It is attention fixed on proper objects of pursuit; perseverance that never wavers from its purpose; application, steady and constant; and not the prominences of the cranium, that constitute the most striking differences among men, and which will enable each of you, not only to attain, but to deserve the highest distinctions and rewards.

THE END.

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